

**EPA Superfund
Record of Decision:**

**AVTEX FIBERS, INC.
EPA ID: VAD070358684
OU 01
FRONT ROYAL, VA
09/30/1988**

(SEE FIGURE 2 FOR SAMPLING LOCATIONS)

ALKALINITY	POTASSIUM	PH
ARSENIC	MAGNESIUM	SULFIDE
CADMIUM	MANGANESE	SULFATE
CHLORIDE	SODIUM	TDS
COD	NITRATE	TOC
CONDUCTIVITY	LEAD	TSS
IRON	PHENOLICS	ZINC

ADDITIONALLY, CARBON DISULFIDE WAS ANALYZED FOR EACH SAMPLE. SEVERAL OF THE COLLECTED SAMPLES DURING BOTH THE FIRST AND SECOND ROUND OF SAMPLING WERE ALSO ANALYZED FOR THE FULL CONTRACT LABORATORY PROGRAM (CLP) LIST OF ORGANIC PARAMETERS.

TO DATE, THE DATA COLLECTED FROM MONITOR WELLS AND THE RESULTS OF AQUIFER PERFORMANCE TEST HAVE INDICATED THAT Laterally, the plume is within a narrow fracture system.

THE RESULTS OF GROUND WATER ANALYSIS INDICATED TWO DISTINCT GEOCHEMICAL PATTERNS ARE DISCERNIBLE AT THE AVTEX FIBERS SITE. WITH RESPECT TO CARBON DISULFIDE, TOTAL PHENOLICS, CADMIUM AND PH, A PLUME OF GROUND WATER CONTAMINATION WAS IDENTIFIED (SEE FIGURE 3) DEGRADATION OF THE GROUND WATER WITH RESPECT TO THESE PARAMETERS IS ATTRIBUTABLE TO THE LEACHING OF VISCOSE-WASTE MATERIAL DISPOSED WITHIN VISCOSE BASINS 9, 10, AND 11. THE CONSTITUENTS DETECTED ALSO REFLECT THE CONSTITUENTS IDENTIFIED ON THE WEST SIDE OF THE SHENANDOAH RIVER AT RIVERMONT ACRES.

WITHIN THIS PLUME OF CONTAMINATION, A NARROW BAND OF ELEVATED ARSENIC CONCENTRATIONS WAS ALSO IDENTIFIED. THE PRESENCE OF THE DISSOLVED ARSENIC IS THE RESULT OF THE INTERACTION BETWEEN THE HIGH PH FLUIDS WITHIN THE VISCOSE BASINS AND THE IMPOUNDMENT BERMS WHICH ARE COMPOSED OF CLAY WITH A FLY-ASH CORE.

THE SECOND GEOCHEMICAL PATTERN IN THE GROUND WATER IS ILLUSTRATED BY THE SULFATE AND TOTAL DISSOLVED SOLIDS PARAMETERS AS SHOWN IN FIGURE (P. 123FS). GROUND WATER DEGRADATION WITH RESPECT TO THESE TWO PARAMETERS IS FACILITY WIDE. THIS FACILITY WIDE GROUND WATER DEGRADATION WITH RESPECT TO THE NON-HAZARDOUS CONSTITUENTS WAS NOT FOCUS OF THE FS AND WILL NOT BE ADDRESSED BY THIS ROD. HOWEVER, REMEDIAL ACTIONS WHICH RECOVER THE VISCOSE WASTE CONSTITUENTS IN GROUND WATER FROM THE WEST SIDE OF THE RIVER WILL ALSO CAPTURE THESE SECONDARY CONSTITUENTS WITHIN THE AREA OF INFLUENCE OF THE PUMPING.

THE SAMPLING OF SOLID AND LIQUID PHASES WITHIN THE VISCOSE BASINS PROVIDED SPECIFIC DATA ON THE WASTE CHARACTERISTICS. FOR SOLID SAMPLES COLLECTED WITHIN BASINS 1, 2, 3, AND 7, CARBON DISULFIDE CONCENTRATIONS WERE LESS THAN 3.0 MILLIGRAMS PER KILOGRAM (MG/KG). LIQUID SAMPLES COLLECTED FROM THE PIEZOMETERS INSTALLED WITHIN THE BASINS AND WERE FOUND TO CONTAIN LESS THAN 1.5 MILLIGRAMS PER LITER (MG/L) CARBON DISULFIDE. GROUND WASTER SAMPLES FORM WELLS HYDRAULICALLY DOWN GRADIENT DID NOT CONTAINED DETECTABLE LEVELS OF CARBON DISULFIDE.

SOLID SAMPLES FROM VISCOSE BASINS 9, 10, AND 11 CONTAINED AS MUCH AS 20,500 MG/KG CARBON DISULFIDE. MEASUREMENT OF WATER LEVELS FROM WELLS AND PIEZOMETERS INSTALLED IN AND AROUND THESE THREE BASINS SUGGESTS HYDRAULIC COMMUNICATION BETWEEN THE BASINS AND THE GROUND WATER REGIME. GEOCHEMICAL DATA DEMONSTRATE THAT WELLS MW-2, 3, 9, 10, AND GM-8 CONTAIN APPRECIABLE CONCENTRATIONS OF CARBON DISULFIDE AND CONFIRMS THAT VISCOSE BASINS 9, 10, AND 11 ARE THE PRIMARY SOURCE OF THE CONTAMINANT PLUME.

TABLES AND 1 & 2 PROVIDES A SUMMARY OF THE ANALYTICAL RESULTS FOR THE GROUNDWATER SAMPLES AND THE VISCOSE BASIN SAMPLES.

FLOW OF CONSTITUENTS IN THE SHALLOW GROUND WATER TO THE SHENANDOAH RIVER IS OCCURRING; HOWEVER A SURFACE-WATER SAMPLING SURVEY CONDUCTED SHOWED ONLY SLIGHTLY ELEVATED LEVELS OF SULFATE. SHALLOW GROUND WATER FLOW DURING PUMPING OF THE RECOVERY WELLS WILL BE REVERSED AND WILL FLOW TOWARD THE PUMPING WELLS.

BASED UPON CURRENT-USE AND FUTURE USE CONDITIONS, THE POTENTIAL EXPOSURE PATHWAYS ASSOCIATED WITH THE SITE ARE:

- DERMAL CONTACT WITH SOLID OR LIQUID VISCOSE WASTE;
- DERMAL CONTACT WITH GROUND WATER AND BASIN LIQUIDS PUMPED FOR
TREATMENT

- INHALATION OF VOLATILIZED CONSTITUENTS OR FUGITIVE DUST
- INGESTION OF GROUND WATER FOR DOMESTIC USE
- SURFACE WATER THROUGH DERMAL CONTACT AND INGESTION OF LOCALLY CAUGHT FISH.

#SSR

VI. SUMMARY OF SITE RISKS

UTILIZING DATA GENERATED DURING THE RI, A RISK ASSESSMENT (RA) WAS CONDUCTED TO EVALUATE THE POTENTIAL IMPACTS TO HUMAN HEALTH AND THE ENVIRONMENT WHICH MAY RESULT FROM THE RELEASE OF HAZARDOUS SUBSTANCE FROM THE AVTEX SITE. THE CONSTITUENTS THAT HAVE BEEN DETECTED IN THE WASTE VISCOSE MATERIALS AND GROUND WATER AND CONSIDERED IN THE RISK ASSESSMENT ARE ARSENIC, CADMIUM, CARBON DISULFIDE, CHLORIDE, IRON, LEAD, MANGANESE, PHENOLICS, SODIUM, SULFATE, SULFIDE, AND ZINC.

ELEVATED LEVELS WITH RESPECT TO CHLORIDE, MANGANESE, SODIUM, SULFATE, AND ZINC WERE CONSIDERED CONSTITUENTS OF POTENTIAL PUBLIC-WELFARE CONCERN DUE TO AESTHETICS BUT WERE NOT USED AS HEALTH-RISK INDICATOR CHEMICALS. THE INDICATOR CHEMICALS (THOSE HAVING POTENTIAL ADVERSE HEALTH-RISKS) ARE ARSENIC, CADMIUM, LEAD, CARBON DISULFIDE, HYDROGEN SULFIDE AND PHENOLICS. OF THESE, ONLY ARSENIC REPRESENTS A KNOWN HUMAN CARCINOGEN.

ACUTE AND CHRONIC TOXIC RESPONSES ASSOCIATED WITH THE INDICATOR CHEMICALS ARE SUMMARIZED IN TABLE 3. TABLE 4 IS A SUMMARY OF TOXICITY PROFILES OF INDICATOR CHEMICALS. ALTHOUGH SOME OF THE INDICATOR CHEMICALS MAY HAVE TOXIC END POINTS, THE ACTUAL MECHANISM OF TOXICITY VARIES BETWEEN THE CHEMICALS, AND THERE ARE NO REPORTED SYNERGISTIC INTERACTIONS BETWEEN THE INDICATOR CHEMICALS.

THE REFERENCE DOSE (RFD) FOR THE INDICATOR CHEMICALS ARE DERIVED FROM LEVELS WHICH DID NOT RESULT IN ANY OF THE SUMMARIZED TOXIC RESPONSES. THE REFERENCE DOSE FOR THE INDICATOR CHEMICALS ARE IN TABLE 5. THE RFD FOR ARSENIC IS BASED ON THE FEDERAL MCL OF 0.05 MG/L, AND IS CALCULATED FOR COMPARISON WITH THE OTHER CONSTITUENTS.

A DAILY INTAKE LEVEL WAS CALCULATED FOR SKIN ABSORPTION AND SMALL QUANTITY INGESTION OF VISCOSE BASIN SOLIDS AND LIQUIDS AND GROUND WATER USING THE EQUATIONS IN TABLES 6, 7, AND 8. FOR THE BASIN SOLIDS, THE INTAKE LEVELS WERE CALCULATED FOR THE CONSTITUENTS DETECTED IN THE SURFICIAL SAMPLES FROM VISCOSE BASINS 9, 10, AND 11. FOR BASIN LIQUIDS THE INTAKE LEVELS WERE CALCULATED USING THE CONCENTRATIONS DETECTED IN THE VISCOSE BASIN PIEZOMETERS AND SEEP SAMPLES. FOR THE GROUND WATER, INTAKE LEVELS WERE CALCULATED USING THE AVERAGE CONCENTRATIONS DETECTED IN THE MONITORING OR RECOVERY WELLS ALONG THE SHORELINE ON THE EAST SIDE OF THE RIVER, BECAUSE THE CONCENTRATIONS AND THE LIKELIHOOD OF EXPOSURE ARE GREATER ON THIS SIDE OF THE RIVER. INTAKE LEVELS ARE DETERMINED FOR WORST-CASE WORKING LIFETIME EXPOSURE.

USING THE DAILY EXPOSURE INTAKE LEVELS FOR A WORKER AT THE AVTEX WASTE-TREATMENT AREA, HAZARD INDICES FOR THE NONCARCINOGENS WERE CALCULATED FOR THE SOLID VISCOSE WASTE, VISCOSE LIQUID AND GROUND-WATER EXPOSURE PATHWAYS. (TABLE 6.13 44 OF 51). THE HAZARD INDEX IS THE RATIO OF THE ESTIMATED INTAKE LEVELS TO THE REFERENCE DOSE (RFD). AN INDEX VALUE LESS THAN ONE IS AN INDICATION OF AN ACCEPTABLE LEVEL OF EXPOSURE OR MINIMAL RISK. HAZARD INDICES FOR THE INDICATOR CHEMICALS WERE LESS THAN 1 FOR ALL THREE MEDIA. (SOLID WASTE, LIQUID WASTE, GROUND WATER (DERMAL CONTACT)). THE RFDs USED TO CALCULATE THE RISKS WERE FOR CHRONIC OR LIFETIME EXPOSURES, THEREFORE, THE HAZARD INDICES CALCULATED ARE VALUED FOR A LIFETIME EXPOSURE OF WORKERS TO THE WASTES AND GROUND WATER (DERMAL CONTACT).

THE INTAKE FOR ARSENIC WAS CALCULATED AS A SINGLE EXPOSURE AVERAGED OVER THE LIFETIME, BECAUSE CANCER POTENCY FACTORS ARE DETERMINED ON THE BASIS OF LIFETIME EXPOSURE. THE UPPERBOUND LIFETIME EXCESS CANCER RISK FOR A SINGLE EXPOSURE TO THE SOLID OR GROUND WATER (DERMAL CONTACT) IS 1.4×10^{-5} AND 9.6×10^{-6} , RESPECTIVELY. THE CANCER RISK ASSOCIATED WITH A 45-YEAR WORKING LIFETIME FOR DERMAL EXPOSURE TO BOTH LIQUID AND SOLID WASTES AND GROUND WATER IS 2.4×10^{-5} . THE CANCER RISK ASSOCIATE.

GROUND WATER USED AS A POTABLE WATER SUPPLY WOULD RESULT IN UNACCEPTABLE INTAKE LEVELS. THE TOTAL HAZARD INDEX FOR DRINKING WATER EXPOSURE IS 298. DRINKING WATER EXPOSURE TO THE NONCARCINOGENIC CONSTITUENTS PRESENTS AND AN UNACCEPTABLE LEVEL OF HUMAN HEALTH HAZARD. (SEE TABLE 9) FOR ARSENIC, THE CANCER RISK ASSOCIATED WITH DRINKING GROUND WATER IS A 1.4×10^{-2} . (SEE TABLE 9)

SURFACE WATER PATHWAY

A MODEL WAS DEVELOPED TO ESTIMATE THE TOTAL RATE OF SHALLOW GROUND WATER DISCHARGE TO THE RIVER, AND THE EFFECTS OF THIS DISCHARGE ON RIVERWATER QUALITY.

THE RATE OF GROUND WATER DISCHARGE WAS CALCULATED USING EQUATION 1.

$$Q_{GW} = K_V I_V A \quad [1]$$

Q_{GW} = THE VOLUME RATE OF DISCHARGE OF GROUND WATER
TO THE RIVER

WHERE:

K_V = THE VERTICAL HYDRAULIC CONDUCTIVITY

I_V = THE VERTICAL HYDRAULIC GRADIENT = .05

A = THE AREA OF CONCERN OVER WHICH THE
SHALLOW GROUND WATER IS DISCHARGING TO
THE RIVER = (X AVERAGE WIDTH, 350 FT, BY
LENGTH OF THE RIVER FROM THE NORTH END
OF SULFATE BASIN 1 TO THE SOUTH END OF
SULFATE BASIN 4, = 3500 FT).

AND WAS ESTIMATED TO BE 111 FT³/MIN OR 1.2 MILLION-GALLONS-DAY.

THE RATE OF ORGANIC LOADING TO THE RIVER FROM THIS AREA OF AFFECTED GROUND WATER QUALITY COULD THEN BE CALCULATED BY MULTIPLYING THE VOLUMETRIC RATE OF GROUND WATER DISCHARGE TO THE RIVER, Q_{GW} , BY THE AVERAGE CONCENTRATION OF SPECIFIC CONSTITUENTS IN THE SHALLOW GROUND WATER. THE GW SAMPLES FROM PZ WELLS LOCATED ALONG THE RIVER REPRESENT THE SHALLOW GROUND WATER.

THE CONCENTRATION OF CONSTITUENT X THAT WOULD RESULT IN THE RIVER FROM SHALLOW GROUND-WATER DISCHARGE TO THAT RIVER, CAN BE CALCULATED USING THE FOLLOWING EQUATION:

$$C(X)_R = \frac{Q_R C(X)_R + Q_{GW} C(X)_{GW}}{Q_R + Q_{GW}} \quad [3]$$

WHERE: Q_R = THE VOLUMETRIC FLOW RATE OF THE RIVER

$C(X)_R$ = THE CONCENTRATION OF CONSTITUENT X IN
THE RIVER WATER

$C(X)_R$ = THE CONCENTRATION OF CONSTITUENT X IN
THE RIVER WATER PRIOR TO ENCOUNTERING
THE SHALLOW GROUND WATER DISCHARGED IN
THE VICINITY OF THE PLANT

$C(X)_{GW}$ = THE CONCENTRATION OF CONSTITUENT X IN
THE GROUND WATER

IF IT IS ASSUMED THAT THE CONCENTRATION OF THE CONSTITUENT IN THE RIVER IS INITIALLY ZERO, BEFORE ENCOUNTERING THE SHALLOW GROUND WATER DISCHARGED FROM THE VICINITY OF THE PLANT, THEN EQUATION 3 IS REDUCED TO THE FOLLOWING EXPRESSION:

$$C(X)_R = \frac{Q_{GW} C(X)_{GW}}{Q_R + Q_{GW}} \quad [4]$$

AND REPRESENTS THE CHANGE IN RIVER WATER QUALITY THAT IS ATTRIBUTABLE TO THE DISCHARGE TO THE RIVER OF SHALLOW GROUND WATER IN THE VICINITY OF THE PLANT. THIS CALCULATION WAS PERFORMED FOR SEVERAL INORGANIC CONSTITUENTS, ASSUMING THE VOLUMETRIC FLOW RATE OF THE RIVER IS 35 MGD, AND THE RESULTS OF THESE CALCULATIONS ARE PRESENTED IN TABLE 1.

AIR PATHWAY

VOLATILIZATION AND FUGITIVE DUST GENERATION OF VISCOSE WASTES. VOLATILIZATION FROM BASINS 9, 10, 11 IS PROBABLY RESULTING IN THE RELEASE OF CARBON DISULFIDE TO THE ATMOSPHERE. HOWEVER, CONCENTRATIONS OF CARBON DISULFIDE WERE MONITORED IN THE AIR DURING DRILLING AND SAMPLING COLLECTION AT THESE THREE BASINS AND THE LEVELS WERE ALWAYS BELOW THE THRESHOLD LIMIT VALUE (TLV) OF 30 MG/M3, WITH FEW EXCEPTIONS, THE HYDROGEN SULFIDE LEVELS WERE BELOW THE TLV OF 14 MG/M3. ONLY WHEN THE SURFACE WAS DISTURBED BY DRILLING ACTIVITIES DID LEVELS EXCEED THE TLV FOR HYDROGEN SULFIDE.

FUGITIVE DUST RELEASES FROM BASINS 9, 10, AND 11 ARE EXPECTED TO BE LOW BECAUSE A CRUST IS FORMED AT THE SURFACE OF THE WASTE. THE CRUST HAS LOW CONCENTRATIONS OF CARBON DISULFIDE (0.1 MG/L).

RUNOFF FROM THE BASINS IS NOT SIGNIFICANT BECAUSE THE WASTES ARE PERMEABLE, AND THE WASTE BASINS HAVE BERMS THAT EXTEND ABOVE THE WASTE LEVELS.

#DSC

VII. DOCUMENTATION OF SIGNIFICANT CHANGES

#DA

VIII. DESCRIPTION OF ALTERNATIVES

A. SUMMARY OF ALTERNATIVES

THE THREE SCREENED ALTERNATIVES EVALUATED ARE SUMMARIZED BELOW.

OPTION	GROUND WATER MONITORING	INSTITUTIONAL CONTROLS	BASIN DEWATERING
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ALTERNATIVE

1	X	X	
2	X	X	X
3	X	X	X

	PUMP AND TREAT IN EXISTING WTP	PUMP AND TREAT PACKAGE PLANT	
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1			
2	X		
3		X	

B. TREATMENT COMPONENTS

THE OPTIONS COMPRISING THE ABOVE ALTERNATIVES ARE DESCRIBED BELOW:

MONITORING - FOR ALL ALTERNATIVES A GROUND WATER MONITORING PROGRAM USING THE EXISTING WELLS AND PERHAPS ADDITIONAL MONITORING WELLS DOWNGRAIENT OF VISCOSE BASINS 9, 10, AND 11 WILL BE IMPLEMENTED TO MONITOR LEACHATE GENERATION AND GROUND WATER QUALITY. THE DATA WILL BE EVALUATED TO DETERMINE IF THE PARAMETERS MONITORED AND/OR SAMPLING FREQUENCY SHOULD BE MODIFIED.

FOR ALTERNATIVES 2 AND 3 INCLUDE GROUND WATER RECOVERY AND BASIN DEWATERING THE RECOVERY WELLS AND THE LIQUIDS FROM DEWATERING THE BASINS WOULD BE INCLUDED IN THE GROUND WATER MONITORING PROGRAM.

GROUND WATER MONITORING WOULD BE IMPLEMENTATION TO DETERMINE CONCLUSIVELY WHETHER OR NOT WITHDRAWALS FROM PW-1, 2, 3 IS EFFECTIVE IN MANAGING THE LATERAL AND VERTICAL MIGRATION OF THE PLUME.

INSTITUTIONAL CONTROLS - INSTITUTIONAL CONTROLS MAY INCLUDE:

GROUND WATER

- USE RESTRICTIONS TO BE OBTAINED BY SITE OWNERS OR OPERATORS FROM

OWNERS OF PROPERTY AFFECTED BY THE GROUND WATER REMEDIATION OPERABLE UNIT, PROHIBITORY THE CONSTRUCTION OF ANY WATER SUPPLY WELLS.

- RESTRICTIONS RECORDED IN THE REGISTRY OF DEED FORBIDDING THE INSTALLATION OF GROUND WATER WELLS ON PROPERTY AT RIVERMONT ACRES ON BY AVTEX. THESE CONTROLS ARE EXPECTED TO MITIGATE THE RISK FROM THE POTENTIAL EXPOSURE RELATED TO DIRECT INGESTION OF GROUND WATER AFFECTED BY THE SITE UNTIL THE AQUIFER RESTORATION OBJECTIVE IS ACHIEVED (SEE SECTION VIII ON AQUIFER RESTORATION).

VISCOSE BASINS

FOR ALTERNATIVE 1, DEED RESTRICTIONS WOULD BE RECORDED IN THE APPROPRIATE REGISTRY OF DEEDS FORBIDDING THE USE OF THE VISCOSE BASINS FOR ANYTHING BUT INDUSTRIAL PURPOSES. ACCESS RESTRICTIONS, CURRENTLY USED AT THE AVTEX FIBERS SITE INCLUDE A SECURITY FENCE AND A SECURITY GUARD AT THE PLANT ENTRANCE. CONSTRUCTION OF A SECOND FENCE AROUND VISCOSE BASINS 9, 10, AND 11 WOULD FURTHER RESTRICT ACCESS TO THE VISCOSE WASTE.

BASIN DEWATERING

VISCOSE BASINS 9, 10, AND 11 PRESENTLY CONTAIN APPROXIMATELY 314,000 CUBIC YARDS OF VISCOSE SOLIDS WITH 90% WATER CONTENT, BY WEIGHT, AS WELL AS AN UNDETERMINED QUANTITY OF FREE WATER. THE DEWATERING WILL RESULT IN APPROXIMATELY A 50% REDUCTION IN THE VISCOSE MATERIAL AND A GREAT DEAL OF CONTAMINATION FROM THE SOURCE AREA WILL BE TREATED AT THE WWTP. IN ADDITION, DEWATERING ACTS TO ELIMINATE OR REDUCE THE HYDRAULIC HEAD WITHIN THE BASINS, THUS REDUCING THE VERTICAL GRADIENT AND HYDRAULIC RELEASE TO THE UNDERLYING AQUIFER.

THE RATE OF DEWATERING VISCOSE BASINS 9, 10, AND 11 WILL BE DEPENDENT UPON THE WWTP'S CAPACITY TO HANDLE THE HYDRAULIC AND CONTAMINANT LOADING FROM THE DEWATERING OPERATORS. BASED ON THE INFORMATION PRESENTLY AVAILABLE, IT IS PERCEIVED THAT THE DEWATERING SYSTEM FOR THE BASINS WOULD BE INSTALLED AT THE WESTERN END OF EACH VISCOSE BASIN; THE BOTTOM OF THE BASINS SLOPE TO THE WEST. THE DEWATERING SYSTEM MAY INCLUDE MODIFIED WELLS AND/OR AN EXTRACTION TRENCH SYSTEM. FINAL DESIGN AND IMPLEMENTATION WOULD PROCEED BASED ON THE RESULTS OF PILOT STUDIES WHICH ARE PRESENTLY UNDERWAY.

IT IS EXPECTED THAT THE DEWATERING OF THE VISCOSE BASINS WOULD BE COMPLETED LIQUID RECOVERY RATE OF 50 GALLONS PER MINUTE (GPM).

IT WILL BE NECESSARY TO EVALUATE THE NEED FOR GROUND WATER TABLE DEPRESSION AT THE VISCOSE BASINS AND THE EFFECTIVENESS OF DEWATERING WILL BE EVALUATED AFTER ONE YEAR.

BENCH SCALE STUDIES ON THE DEWATERED WASTE WILL ALSO BE CONDUCTED TO DETERMINE WHAT FINAL TREATMENT OF THE DEWATERED WASTE IS MOST APPROPRIATE.

PUMP AND TREATING

BOTH ALTERNATIVES 2 AND 3 REQUIRE THE RECOVERY OF CONTAMINATED GROUND WATER AND COLLECTION OF FLUID FROM DEWATERING THE BASINS, AND ASSUMES THAT THE TREATED WATER WILL BE DISCHARGED TO THE SHENANDOAH RIVER IN CONFORMANCE WITH NPDES PERMIT REQUIREMENTS. THE ACTION ALTERNATIVES ONLY DIFFER IN THE METHODOLOGY USED TO TREAT THE RECOVERED WATER TO ACCEPTABLE LEVELS.

PUMPING PERFORMED DURING THE OPERATION OF INTERIM MEASURES AND AQUIFER TESTS PERFORMED ON THE EAST SIDE OF THE SHENANDOAH RIVER HAVE SHOWN THAT THE FRACTURE SYSTEM ON BOTH SIDES OF THE RIVER ARE HYDRAULICALLY CONNECTED AND THAT THERE IS SOME HYDRAULIC SEPARATION OF THE FRACTURE SYSTEM FROM THE RIVER. THE PUMP TEST HAVE SHOWN THE EXTRACTION OF GROUND WATER FROM RECOVERY WELLS PW-1, 2, AND 3 IS EFFECTIVE IN CAPTURING CONTAMINATED GROUND WATER ON THE WEST SIDE OF THE RIVER. A GROUND WATER MONITORING PROGRAM WILL BE IMPLEMENTED TO DETERMINE CONCLUSIVELY WHETHER OR NOT WITHDRAWALS FROM ONLY THESE WELLS IN EFFECTIVE IN MANAGING THE LATERAL AND VERTICAL MIGRATION OF THE PLUME.

EXISTING WWTP FOLLOWING PRETREATMENT

PRETREATMENT OPTION INCLUDES THE EQUALIZATION OF THE RECOVERED GROUND WATER AND THE VISCOSE BASIN FLUID IN AN EQUALIZATION TANK AERATION IN THE EQUALIZATION TANK WILL BE ADEQUATE TO REMOVE EXCESS CARBON DISULFIDE FROM SOLUTION. A NEUTRALIZATION PROCESS FOLLOW TO ADJUST PH VALUE TO 6.5 - 7.0. CHEMICAL

PRECIPITATION IN AN ACIDIC ENVIRONMENT WILL REMOVE THE INSOLUBLE SULFIDES OF CADMIUM, ARSENIC, LEAD, IRON, AND ZINC. THE HYDROGEN SULFIDE PRESENT IN THE RECOVERED GROUND WATER WITH THE ADDITION OF SODIUM SULFIDE WILL REMOVE THE METALS. THE RECOVERED WATERS ARE THEN TRANSFERRED TO THE EXISTING WWTP FOR FURTHER TREATMENT. THE WWTP PROCESS CONSISTS OF PRIMARY SEDIMENTATION FOLLOWED BY MECHANICALLY AERATED ACTIVATED SLUDGE AND FINAL CLARIFICATION. THE PRIMARY SEDIMENTATION PROCESS IS ENHANCED BY LIME ADDITION TO NEUTRALIZE THE ACIDIC WASTE STREAM AND PRECIPITATE ZINC. IT IS ANTICIPATED THAT THE SLUDGE WILL NOT BE EP TOXIC AND THEREFORE MAY BE DISPOSED ON-SITE. TESTING WILL BE REQUIRED AND IF FOUND TO BE EP TOXIC, THE SLUDGE WILL BE DISPOSED IN A RCRA APPROVED LANDFILL. IF RCRA LAND BAN REQUIREMENTS IS APPLICABLE, SLUDGE WILL REQUIRE TREATMENT BEFORE DISPOSAL. THE NPDES PERMITTED EFFLUENT IS DISCHARGED TO THE SHENANDOAH RIVER.

PACKAGE ACTIVATED SLUDGE WASTEWATER TREATMENT PLANT

A PACKAGE ACTIVATED-SLUDGE WASTEWATER TREATMENT PLANT COULD BE UTILIZED TO TREAT THE RECOVERED GROUND WATER AND LIQUIDS GENERATED FROM DEWATERING AND LEACHATE COLLECTION FROM THE VISCOSE BASINS. THE PACKAGE PLANT DESIGN WOULD BE SIMILAR TO THAT OF THE EXISTING WWTP SINCE IT HAS BEEN PROVEN EFFECTIVE FOR THE CONSTITUENTS OF CONCERN. BIOLOGICAL TREATMENT IS CONSIDERED BY EPA TO BE THE BEST AVAILABLE TECHNOLOGY FOR VISCOSE WASTE TREATMENT (40 CFR 414). THE WASTE STREAM WOULD REQUIRE PH STABILIZATION AT THE PLANT INFLUENT AND THE MEANS FOR SLUDGE DISPOSAL. THE PROCESS OPTIONS REQUIRED BEFORE BIOLOGICAL OXIDATION ARE THOSE DISCUSSED PREVIOUSLY UNDER THE PRETREATMENT OPTIONS. AS STATED PREVIOUSLY, SLUDGE WILL BE TESTED FOR EP TOXICITY. IF TOXIC, DISPOSAL WILL BE IN AN APPROVED RCRA LANDFILL. IF RCRA LAND BAN APPLIES, SLUDGE WILL REQUIRE TREATMENT BEFORE DISPOSAL

C. IMPLEMENTATION TIMEFRAME

THE ESTIMATED REMEDIAL ACTION TIMEFRAMES FOR EACH OF THE ALTERNATIVES ARE SUMMARIZED BELOW:

ALTERNATIVE	TIME TO ACHIEVE AQUIFER RESTORATION	TIME TO DEWATER WASTE	COMMENTS
1	N/A	N/A	WILL NOT ACHIEVE AQUIFER RESTORATION
2	UNKNOWN	2 YEARS	ONCE THE SOURCE OF THE GROUND WATER CONTAMINATION IN COMPLETED REMEDIATE TIME WILL BE ESTIMATED. BASIN DEWATERING AND PUMPING COULD COMMENCE FOLLOWING CONSTRUCTION OF PRETREATMENT OPTIONS CONSTRUCTION IS ESTIMATED AT ONE YEAR FS COST BASED ON 30 YEARS O&M
3	2 YEARS		TIME CAN BE ESTIMATED ONCE THE SOURCE IS REMEDIATED. FS COSTS BASED ON 30 YEARS O&M. CONSTRUCTION TIME FOR PACKAGE PLANT IS ESTIMATED AT 1-1/2 YEARS.

D. DESCRIPTION OF MAJOR ARARS FOR SELECTED REMEDY.

CHEMICAL SPECIFIC ARARS FOR GROUND WATER PUMPING.

THE FOLLOWING TABLE LISTS CLEANUP CRITERIA PROPOSED FOR CHEMICALS OF CONCERN THAT WILL BE TREATED AND MONITORED.

THESE ARARS ARE BASED ON VALUES DERIVED FROM THE FOLLOWING: MCLS FROM THE FEDERAL DRINKING WATER STANDARDS, EPA REFERENCE DOSE-BASED WATER LIMITS, AND VIRGINIA STATE DRINKING WATER STANDARDS. THESE ARE BASED ON IDENTIFYING THE AQUIFER OF CONCERN AS EQUIVALENT TO A CLASS II AQUIFER.

CHEMICAL SPECIFIC ARARS

PARAMETER (MG/L)	ARAR	METHOD/SOURCE
CARBON DISULFIDE	.7	RFD
HYDROGEN SULFIDE	TBD	(1)
PHENOL	.001	VAGWS
CADMIUM	.01	MCL
LEAD	.05	MCL
ARSENIC	.05	MCL
ZINC	5	MC

MCL-MAXIMUM CONTAMINANT LEVELS

RFD-EPA REFERENCE DOSE

(1)-CLEANUP LEVEL BASED ON SITE BACKGROUND

VAGWS-VIRGINIA GROUND WATER STANDARD

CLEAN-UP CRITERIA WOULD BE APPLIED TO GROUND WATER QUALITY MONITORED AT BOTH THE RECOVERY AND MONITORING WELLS. THE OPERATION OF THE GROUND WATER RECOVERY AND TREATMENT SYSTEM MAY BE DISCONTINUED WHEN ALL ARARS FOR GROUND WATER ARE ATTAINED. THE PUMP AND TREATMENT SYSTEM WOULD BE REACTIVATED IF THE CONCENTRATION OF INDICATOR CHEMICALS SHOWS A SIGNIFICANT INCREASE ABOVE THE CLEAN-UP CRITERIA IN TWO CONSECUTIVE QUARTERS.

PERFORMANCE CRITERIA ARARS FOR GROUND WATER AND BASIN FLUID TREATMENT

ON SITE DISCHARGES FROM CERCLA SITES TO SURFACE WATERS ARE REQUIRED TO MEET THE SUBSTANTIVE CWA NPDES REQUIREMENTS, INCLUDING DISCHARGE LIMITATIONS, MONITORING REQUIREMENTS, AND BEST MANAGEMENT PRACTICES. STATE WATER CONTROL BOARD REGULATION 6: NPDES PERMIT PROGRAM, FEDERAL WATER QUALITY CRITERIA AND STATE SURFACE WATER QUALITY STANDARDS ARE ALSO APPLICABLE.

CHEMICAL SPECIFIC WATER QUALITY ARARS (IN PPB)

PARAMETER

REGULATION	ARSENIC	CADMIUM	LEAD	ZINC	PHENOLICS	HYDROGEN SULFIDE
HUMAN HEALTH PROTECTION						
1. CWA FISH AND WATER	0.0022*	10	50	5000+	3500	-
2. CWA WATER ONLY	0.0025*	10	50	5000+	-	-
3. CWA FISH ONLY	0.0175*	-	-	-	-	-
4. VA SURFACE WATER	50	10	50	5000	1	-

AQUATIC LIFE PROTECTION

5. CWA FRESHWATER ACUTE	360**	3.9	82	120#	10200	-
6. CWA FRESHWATER CHRONIC	190**	1.1	3.2	110#	2560	-
7. VA FRESHWATER	190**	3.2	16.8	47	1	2

* RISK LEVEL OF 1 IN A MILLION IS PRESENTED

** CRITERION IS FOR TRIVALENT FORM OF ARSENIC

+ ORGANOLEPTIC CRITERION

HARDNESS BASED CRITERION, CALCULATED USING A VALUE OF 100 MG/L

1. CLEAN WATER ACT, CRITERIA BASED ON INGESTION OF FISH AND WATER.
2. CLEAN WATER ACT, CRITERIA BASED ON INGESTION OF WATER ONLY.
3. CLEAN WATER ACT, CRITERIA BASED ON INGESTION OF FISH ONLY.
4. VIRGINIA SURFACE WATER STANDARD FOR PUBLIC WATER SUPPLY.
5. CLEAN WATER ACT, CRITERIA FOR PROTECTION OF FRESHWATER ORGANISMS FROM ACUTE TOXICITY.
6. CLEAN WATER ACT, CRITERIA FOR PROTECTION OF FRESHWATER ORGANISMS FROM CHRONIC TOXICITY.
7. VIRGINIA WATER QUALITY CRITERIA FOR SURFACE WATER, FRESHWATER ORGANISMS.

LAND DISPOSAL ARARS

IF SLUDGE IS FOUND TO EP TOXIC, HAZARDOUS WASTE REQUIREMENTS (RCRA SUBTITLE C, 40 CFR, PART 264 IS ARAR. RCRA LAND BAN IS A POTENTIAL ARAR.

PERFORMANCE CRITERIA (ARARS) FOR AIR EMISSIONS FROM REMEDIAL ACTIVITIES

- OSHA REQUIREMENTS (29 CFR PARTS 1910, 1926, AND 1904) - OSHA REGULATIONS PROVIDE OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS APPLICABLE TO WORKERS ENGAGED IN ONSITE FIELD ACTIVITIES. THRESHOLD LIMIT VALUES (TLVS) REFER TO AIRBORNE CONCENTRATIONS OF SUBSTANCES AND REPRESENT CONDITIONS, UNDER WHICH IT IS BELIEVED, THAT WORKERS MAY BE REPEATEDLY EXPOSED WITHOUT ADVERSE EFFECT.

- VIRGINIA AIR POLLUTION CONTROL BOARD REGULATIONS FOR CONTROL AND ABATEMENT OF AIR POLLUTION, SUBSECTION 120-05-0300 FOR NEW OR MODIFIED FACILITIES. REMEDIAL ACTIONS WILL RESULT IN EMISSIONS OF CARBON DISULFIDE AND HYDROGEN SULFIDE. THE STANDARD FOR NON-CRITERIA POLLUTANTS (NON-CARCINOGENS) IS BASED ON THE THRESHOLD LIMIT VALUE - TIME WEIGHTED AVERAGE (TLV-TWA) FOR THAT POLLUTANT DIVIDED BY A FACTOR OF 60. (SEE SECTION 120-05-0300) AND IS APPLICABLE AT THE SITE BOUNDARY FOR EMISSIONS RESULTING FROM THE TREATMENT OF GROUNDWATER AND BASIN FLUIDS.

LOCATION SPECIFIC ARARS

EXECUTIVE ORDER 11988, PROTECTION OF FLOOD PLAINS (40 CFR PART 6, APPENDIX A). THIS REQUIRES ACTION TO AVOID ADVERSE EFFECTS, MINIMIZE POTENTIAL HARM, RESTORE AND PRESERVE NATURAL AND BENEFICIAL VALUE BE TAKEN.

EXECUTIVE ORDER 11990, PROTECTION OF WETLAND (40 CFR PART 6, APPENDIX A), REQUIRES ORDER TO MINIMIZE THE DESTRUCTION AND LOSS OR DEGRADATION OF WETLANDS.

E. DESCRIPTION OF THE PREFERRED ALTERNATIVE

EPA'S PREFERRED ALTERNATIVE DIFFERS FROM THE ALTERNATIVE RECOMMENDED BY THE PRP RESPONDENTS.

WHILE THE GROUND WATER REMEDIATION COMPONENT OF THE ALTERNATIVES EPA EVALUATED IN THE PROPOSED REMEDIAL ACTION PLAN ARE SIMILAR TO THOSE ALTERNATIVES EVALUATED IN THE RI/FS, THE ALTERNATIVES EPA EVALUATED DIFFERS FROM ALL FIVE ALTERNATIVES ANALYZED IN THE RI/FS. THIS IS BECAUSE EPA AND THE VIRGINIA DMN DETERMINED THAT ADDITIONAL STUDIES WERE REQUIRED TO FULLY EVALUATE THE EFFECTS DEWATERING THE WASTE VISCOSE BASINS HAS ON THE TOXICITY OF THE WASTE, AND THE VOLUME OF WASTE REQUIRING TREATMENT.

EPA PREFERRED ALTERNATIVE FOR OPERABLE UNIT ONE IS COMPRISED OF THE FOLLOWING:

- GROUND WATER PUMPING AND TREATMENT IN THE EXISTING WWTP AFTER THE PLANT HAS BEEN MODIFIED AND UPGRADED.
- VISCOSE BASIN 9, 10, AND 11 DEWATERING AND TREATMENT OF FLUIDS IN THE WASTE WATER TREATMENT PLANT
- GROUND WATER AND SURFACE WATER MONITORING.

ESTIMATED COSTS FOR EPA'S PREFERRED ALTERNATIVE IS \$9.2 MILLION

BASIN DEWATERING IS AN INTERIM MEASURE REQUIRED BEFORE ANY TREATMENT OF THE WASTE COULD BE IMPLEMENTED. BASED ON THE INFORMATION GATHERED IN THE REMEDIAL INVESTIGATION, BASIN DEWATERING SHOULD REDUCE THE TOXICITY OF THE BASIN MATERIAL SIGNIFICANTLY; HOWEVER, IT IS UNKNOWN IF BASIN DEWATER WILL BE EFFECTIVE IN THE DEEPER PORTIONS OF THE BASINS. THE TOTAL REDUCTION IN TOXICITY VIA DEWATERING AND NATURAL DEGRADATION CAN ONLY BE ASSUMED. EPA THEREFORE RECOMMENDS THAT THE DECISION OF THE PREFERRED FINAL TREATMENT OF THE WASTE BE DEFERRED UNTIL MORE IS KNOWN ABOUT THE CHARACTERISTICS OF THE DEWATERED WASTE. CONCURRENT WITH/THE DEWATERING OF THE WASTE, EPA HAS RECOMMENDED THAT A FOCUSED FEASIBILITY STUDY TO INCLUDE BENCH-SCALE STUDIES ON DEWATERED WASTE AND TREATABILITY STUDIES BE CONDUCTED TO DETERMINE: 1) THE TOXICITY OF THE VISCOSE WASTE FOLLOWING THE DEWATERING, 2) THE TECHNOLOGY MOST EFFECTIVE TO TREAT THE REMAINING VOLUME OF HAZARDOUS WASTE.

#SCAA

IX. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

A SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES IS PROVIDED IN THE FOLLOWING TABLE. COSTS INCLUDED IN THE TABLE ARE ESTIMATES ONLY.

COMPARISON OF REMEDIAL ALTERNATIVES
AVTEX FIBERS, INC.
FRONT ROYAL, VIRGINIA

REMEDIAL ALTERNATIVES OPERABLE UNIT 1

ALTERNATIVE 1

SCREENING CRITERIA

NO ACTION GW

BASINS

SHORT-TERM EFFECTIVENESS

DOES NOT MITIGATE POTENTIAL RISKS DUE
TO INGESTION OF GROUND WATER.
MINIMAL RISK TO WORKERS

LONG-TERM
EFFECTIVENESS

POTENTIAL RISK DUE TO INGESTION OF
GROUND WATER NOT MITIGATED
MINIMAL O&M REQUIRED FOR SECURITY FENCE

REDUCTION OF
TOXICITY, MOBILITY
AND VOLUME

GROUND WATER IN NOT AFFECTED; STILL
REMAINS A POTENTIAL THREAT
TOXICITY AND VOLUME OF VISCOSE WASTE
NOT AFFECTED

IMPLEMENTABILITY

UTILIZES CONVENTIONAL CONSTRUCTION
METHODS
FUTURE REMEDIAL ACTIONS NOT PRECLUDED
BY THE CURRENT ACTION

CAPITAL AND O&M
COST (PRESENT WORTH)

\$603,000

COMPLIANCE WITH ARARS

DOES NOT MEET ARARS IN AQUIFER

ALTERNATIVE 2

SCREENING CRITERIA

GW TO UPGRADE EXISTING WWTP
DEWATER VISCOSE BASINS

SHORT-TERM
EFFECTIVENESS

EFFECTIVELY MINIMIZES POTENTIAL
FUTURE RISK DUE TO INGESTION OF GROUND
WATER

MODERATE RISK TO WORKERS WHILE
INSTALLING DEWATERING SYSTEM

LONG-TERM
EFFECTIVENESS

POTENTIAL RISK TO DUE TO INGESTION
INGESTION OF GROUND WATER MINIMAL

REDUCTION OF
TOXICITY, MOBILITY
AND VOLUME

LOW O&M REQUIRED FOR GW RECOVERY AND
BASIN DEWATERING
TOXICITY AND VOLUME OF VISCOSE WASTE
REDUCED DUE TO DEWATERING

IMPLEMENTABILITY	UTILIZES CONVENTIONAL CONSTRUCTION METHODS FUTURE REMEDIAL ACTIONS NOT PRECLUDED BY THE CURRENT ACTION
CAPITAL AND O&M COST (PRESENT WORTH)	\$9,122,000
COMPLIANCE WITH ARARS	WOULD MEET ARARS IN THE AQUIFER AND DISCHARGE ARARS
	ALTERNATIVE 3
SCREENING CRITERIA	GW TO PACKAGE WWTP DEWATER VISCOSE
SHORT-TERM EFFECTIVENESS	EFFECTIVELY MINIMIZES POTENTIAL FUTURE RISK DUE TO INGESTION OF GROUND WATER MODERATE RISK TO WORKERS WHILE INSTALLING DEWATERING SYSTEM
LONG-TERM EFFECTIVENESS	POTENTIAL RISK DUE TO INGESTION OF GROUND WATER MINIMAL
REDUCTION OF TOXICITY, MOBILITY AND VOLUME	LOW O&M REQUIRED FOR GW RECOVERY AND BASIN DEWATERING TOXICITY, MOBILITY AND VOLUME OF GROUND WATER PERMANENTLY AND SIGNIFICANTLY REDUCED. TOXICITY AND VOLUME OF VISCOSE WASTE REDUCED DUE TO DEWATERING
IMPLEMENTABILITY	UTILIZES CONVENTIONAL CONSTRUCTION METHODS FUTURE REMEDIAL ACTIONS NOT PRECLUDED BY THE CURRENT ACTION
CAPITAL AND O&M COST (PRESENT WORTH)	\$15,421,000
COMPLIANCE WITH ARARS	WOULD MEET ARARS IN THE AQUIFER AND DISCHARGE ARARS
#SR SELECTED REMEDY	

SECTION 121 OF SARA AND THE NATIONAL CONTINGENCY PLAN (NCP) ESTABLISHED A VARIETY OF REQUIREMENTS RELATING TO THE SELECTION OF REMEDIAL ACTIONS UNDER CERCLA. HAVING APPLIED THE CURRENT EVALUATION CRITERIA TO THE THREE REMEDIAL ALTERNATIVES, EPA RECOMMENDS THAT ALTERNATIVE 2 BE IMPLEMENTED AT THE AVTEX FIBERS SITE. THIS ALTERNATIVE IS RECOMMENDED WITH THE FOLLOWING CONSIDERATIONS:

- 1) THE PROPOSED MODIFICATION UPGRADES TO THE EXISTING WWTP WILL BRING THE PLANT INTO STEADY COMPLIANCE AND
- 2) TREATABILITY STUDIES WILL CONCLUSIVELY DEMONSTRATE THAT THE UPGRADED PLANT WILL HAVE THE CAPABILITY TO TREAT THE RECOVERY GROUND WATER AND BASINS FLUIDS.

ALTERNATIVE 3 WILL BE THE CONTINGENCY PLAN SHOULD THE USE OF THE EXISTING WWTP BE EXCLUDED.

THIS IS AN OPERABLE UNIT REMEDY FOR THE SITE AND AS SUCH DOES NOT ATTEMPT TO ENSURE COMPLIANCE WITH ALL ARARS FOR THE ENTIRE SITE. IT WILL BE CONSISTENT, HOWEVER, WITH THOSE ACTION-SPECIFIC ARARS ADDRESSING THE GROUND WATER REMEDIATION. THIS OPERABLE UNIT REMEDY WILL NOT BE INCONSISTENT WITH A FINAL COMPREHENSIVE REMEDY FOR THE SOURCE (WASTE VISCOSE).

THE NO ACTION ALTERNATIVE IS NOT PROTECTIVE OF HUMAN HEALTH OR THE ENVIRONMENT AND DOES NOT MEET ARARS; THEREFORE, THE NO ACTION ALTERNATIVE WILL NOT BE CONSIDERED FOR THIS SITE. ALTERNATIVE 2 WILL BE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT AND ATTAINS ALMOST ALL APPLICABLE, OR RELEVANT AND APPROPRIATE REQUIREMENTS IDENTIFIED FOR THIS FOR THIS OPERABLE UNIT. THE SELECTED ALTERNATIVE CAN BE OPERATIONAL IN ONE YEAR. FINAL TREATMENT OF THE SOURCE WILL NOT BE DIRECTLY ADDRESSED IN THIS OPERABLE UNIT.

POINT OF COMPLIANCE

THE POINT OF COMPLIANCE FOR GROUND WATER REMEDIATION WILL BE THE RECOVERY WELLS AND THE MONITORING WELLS ON SITE.

PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

THE SELECTED REMEDY INVOLVES PUMPING AND TREATMENT OF GROUND WATER TO ADDRESS THE PRINCIPAL THREATS POSED BY THE GROUND WATER OPERABLE UNIT. IT WILL ALSO INVOLVE EXTRACTION AND TREATMENT OF BASIN FLUIDS AS AN INTERIM MEASURE. THIS WILL REDUCE THE TOXICITY OF THE VISCOSE MATERIAL AND ITS VOLUME. THE ROD FOR THE TREATMENT OF THE VISCOSE WASTE WILL ADDRESS IN ITS ENTIRETY REMEDIATION OF THREATS TO GROUND WATER, AIR AND SURFACE WATER CAUSED BY THE VISCOSE BASIN.

RISK LEVEL TO BE ATTAINED

WHEN THE AQUIFER RESTORATION GOALS ARE ATTAINED, THE HAZARD INDEX FOR INGESTION OF GROUND WATER WILL BE LESS THAN 1 FOR THE NON-CARCINOGEN CONTAMINANTS IN THE GROUND WATER. WITH RESPECT TO ARSENIC, THE CANCER RISK WILL BE THAT RISK ASSOCIATED WITH THE EPA PRIMARY DRINKING WATER STANDARD OF 0.050 MG/L WHICH IS A CALCULATED CANCER RISK OF APPROXIMATELY 10⁻³.

#SD

STATUTORY DETERMINATIONS

PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THE SELECTED REMEDY WILL PROVIDE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY MANAGING THE MIGRATION OF THE CONTAMINANT PLUME CONTAMINATED GROUND WATER AND RECOVERY THE CONTAMINATED PLUME FOR TREATMENT. INSTITUTIONAL CONTROLS WILL ALSO PROTECT BY PROHIBITING THE INSTALLATION OF WELLS USED AS POTABLE WATER ON THE EAST SIDE AND THE WEST SIDE OF THE RIVER. THE ALTERNATIVE WILL NOT POSE ANY UNACCEPTABLE SHORT TERM RISKS OR CROSS-MEDIA IMPACTS.

THE SELECTED ALTERNATIVE WILL BE CONSISTENT WITH THOSE ACTION AND LOCATION SPECIFIC ARARS DETAILED IN SECTION D - DESCRIPTION OF MAJOR ARARS.

1. RCRA SUBTITLE C LAND DISPOSAL REQUIREMENTS IN 40 CFR 264 WHICH ADDRESS DISPOSAL OF HAZARDOUS WASTE. (APPLICABLE IF SLUDGE FROM WASTEWATER TREATMENT PLANT IS FOUND TO BE EP TOXIC.)
2. EXECUTIVE ORDER 11988, PROTECTION OF FLOOD PLAINS AND EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS. (APPLICABLE) GROUNDWATER PUMPING AND BASIN DEWATERING WILL NOT IMPACT THE FLOODPLAIN OR THE WETLANDS IDENTIFIED ON SITE.
3. CWA NPDES PERMIT REQUIREMENTS , VA WATER DISCHARGE PERMIT REGULATIONS WHICH GOVERN THE DISCHARGES TO NAVIGABLE WATERS. (APPLICABLE)
4. OSHA REQUIREMENTS (29 CFR PARTS 1910, 1926, AND 104) PROVIDES OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS APPLICABLE TO WORKERS ENGAGED IN ONSITE FIELD ACTIVITIES. (APPLICABLE)

5. VA. AIR POLLUTION CONTROL BOARD REGULATIONS FOR CONTROL AND ABATEMENT
OF AIR POLLUTION, SUBSECTION 120-05-0300

COST EFFECTIVENESS

THE SELECTED REMEDY, ALTERNATIVE 2, IS MORE COST EFFECTIVE THAN ALTERNATIVE 3 IN THAT IT WILL PROVIDE THE SAME LEVEL OF PROTECTION AS ALTERNATIVE 3 BUT CAN BE IMPLEMENTED AT A SAVINGS ESTIMATED AT \$6.0 MILLION.

PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

THE SELECTED REMEDY INVOLVES PUMPING AND TREATMENT OF GROUND WATER TO ADDRESS THE PRINCIPAL THREATS POSED BY THE GROUNDWATER OPERABLE UNIT. IT WILL ALSO INVOLVE EXTRACTION AND TREATMENT OF BASIN FLUIDS AS AN INTERIM MEASURE. THIS WILL REDUCE THE TOXICITY OF THE VISCOSE MATERIAL AND ITS VOLUME. THE ROD FOR THE TREATMENT OF THE VISCOSE WASTE WILL ADDRESS IN ITS ENTIRETY REMEDIATION OF TREATS TO GROUND WATER, AIR AND SURFACE EATER CAUSED BY VISCOSE BASINS 9, 10 AND 11.

#TA

TABLE 1

ANALYTICAL RESULTS FOR VISCOSE BASIN SOLID AND
LIQUID WASTE SAMPLE COLLECTED IN SEPTEMBER 1987

CONSTITUENT	SOLID WASTE (MG/KG)			
	SURFICIAL RANGE	AVERAGE DETECTED CONCENTRATION	SUBSURFACE RANGE	AVERAGE DETECTED CONCENTRATION
CARBON DISULFIDE	0.070	0.070	0.17 - 20,000	3,100
ARSENIC	0.42 - 12	4.4	0.25 - 13.1	3.4
CADMIUM	8.0	8.0	7.0 - 11	9.0
CHLORIDE	NA(C)	--	NA	--
IRON	1.92 - 9,700	3,300	157 - 52,000	9,500
LEAD	32 - 42	37	8.1 - 3,700	840
MANGANESE	8.4 - 160	74	2.2 - 991	208
PHENOLS	0.28	--	0.21 - 87	23
SODIUM	65 - 25,000	8,905	46 - 113,000	36,000
SULPHATE	NA	--	NA	--
ZINC	274 - 7,900	4,400	13.3 - 2,900	380

A/ USEPA, 1983

B/ NOT AVAILABLE

C/ NOT ANALYZED

SOURCE: ENDANGERMENT ASSESSMENT PREPARED BY GRATHEY & MILLER, INC.

TABLE 1 (CONTINUED)

ANALYTICAL RESULTS FOR VISCOSE BASIN SOLID AND
LIQUID WASTE SAMPLE COLLECTED IN SEPTEMBER 1987

CONSTITUENT	SOLID WASTE (MG/KG)		LIQUID WASTE (MG/L)	
	COMMON RANGE IN SOIL(A)	RANGE	AVERAGE DETECTED CONCENTRATION	
CARBON DISULFIDE	-- (B)	1.5 - 3,400	1,000	
ARSENIC	1 - 50	0.16 - 0.20	0.18	
CADMIUM	0.01 - 0.7	0.02	--	
CHLORIDE	--	100 - 560	300	
IRON	--	0.19 - 2.9	1.2	
LEAD	2 - 200	0.2	--	
MANGANESE	20 - 3,000	0.02 - 4.5	1.0	
PHENOLS	--	0.02 - 20	6.7	
SODIUM	--	2,400 - 15,000	8,200	
SULFATE	--	170 - 9,400	3,600	
ZINC	10 - 300	0.06 - 1.8	0.69	

A/ USEPA, 1983

B/ NOT AVAILABLE

C/ NOT ANALYZED

SOURCE: ENDANGERMENT ASSESSMENT PREPARED BY GRATHEY & MILLER, INC.

TABLE 5
INDICATOR CHEMICAL REFERENCE DOES (RFDS) FOR
CHRONIC EXPOSURE

CONSTITUENT	CHRONIC RFD (MG/KG/DAY)	SOURCE
ARSENIC	0.0014	A
CADMIUM	0.00029	B
CARBON DISULFIDE	0.10	C
HYDROGEN SULFIDE	0.003	B
LEAD	0.0014	B
PHENOL	0.04	D

- A/ CALCULATED FROM MCL OF 0.05 MG/L ASSUMING 70 KG ADULT
DAILY INGESTING 2 LITERS OF WATER.
- B/ SUPERFUND PUBLIC HEALTH EVALUATION MANUAL (USEPA, 1986C).
- C/ USEPA OFFICE OF SOLID WASTE APPENDIX IX RFD LIST (USEPA, 1987).
- D/ PHRED - PUBLIC HEALTH RISK EVALUATION DATA BASE.

TABLE 10
CHANGE IN CONSTITUENT CONCENTRATIONS IN RIVER
DUE TO DISCHARGE OF GROUND WATER TO THE RIVER
(CONCENTRATIONS IN MG/L)

CONSTITUENT	AVERAGE CONCENTRATION IN PZ WELLS	CHANGE IN CONCENTRATION IN RIVER	VIRGINIA SURFACE WATER STANDARDS
CHLORIDE	72	2.4	250
SODIUM	1122	37	..
ZINC	0.01	0.00033	5.0
SULFATE	1900	63	250
CADMIUM	0.0058	0.00019	0.01
LEAD	0.058	0.0019	0.05
ARSENIC	0.006	0.00019	0.05
SULFIDE	7.8	0.25	A

- A) CONCENTRATION WILL BE ESTABLISHED BASED ON THE RIVER WATER-
EVALUATION WILL BE PERFORMED IN 1988.

RESPONSIVENESS SUMMARY
FOR THE PROPOSED REMEDIAL ACTION,
OPERABLE UNIT 1
OPERABLE UNIT 1AT THE AVTEX FIBERS SUPERFUND SITE
FRONT ROYAL, VIRGINIA

I. INTRODUCTION

IN ACCORDANCE WITH THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S (EPA) COMMUNITY RELATIONS POLICY AND GUIDANCE, THE EPA REGION III OFFICE HELD A PUBLIC COMMENT PERIOD FROM AUGUST 24, 1988, TO SEPTEMBER 26, 1988, TO OBTAIN COMMENTS ON THE PROPOSED REMEDIAL ACTION FOR OPERABLE UNIT 1 AT THE AVTEX FIBERS SUPERFUND SITE IN FRONT ROYAL, VIRGINIA. OPERABLE UNIT 1 ENCOMPASSES THE CONTAMINATED GROUND WATER AT THE SITE. ON SEPTEMBER 14, 1988, EPA HELD A PUBLIC MEETING TO EXPLAIN THE PROPOSED REMEDIAL ACTION PLAN (PRAP) AND TO OBTAIN PUBLIC COMMENTS ON THE PROPOSED REMEDY. APPROXIMATELY 80 COMMUNITY RESIDENTS AND INTERESTED PERSONS ATTENDED THE MEETING. COPIES OF THE PRAP WERE DISTRIBUTED AT THE MEETING AND WERE PLACED IN THE INFORMATION REPOSITORY/ADMINISTRATIVE RECORD FOR THE SITE.

THE PURPOSE OF THE RESPONSIVENESS SUMMARY IS TO DOCUMENT QUESTIONS AND COMMENTS RAISED DURING THE PUBLIC COMMENT PERIOD AND EPA'S RESPONSES TO THEM. SECTION II, IMMEDIATELY FOLLOWING, SUMMARIZES THE PRESENTATIONS MADE AT THE PUBLIC MEETING ON SEPTEMBER 14. SECTION III PRESENTS A SUMMARY OF THE QUESTIONS AND COMMENTS EXPRESSED BY THE PUBLIC AT THE MEETING. SECTION IV THEN CONTAINS A SUMMARY OF WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD. THE QUESTIONS AND COMMENTS ARE GROUPED INTO GENERAL CATEGORIES, ACCORDING TO SUBJECT MATTER. ALL QUESTIONS OR COMMENTS ARE FOLLOWED BY EPA'S RESPONSES.

THIS DOCUMENT WAS PREPARED BY BOOZ, ALLEN & HAMILTON INC., A SUBCONTRACTOR TO CDM FEDERAL PROGRAMS CORPORATION, UNDER CONTRACT TO U.S. EPA REGION III TO PROVIDE COMMUNITY RELATIONS SERVICES.

II. SUMMARY OF MEETING PRESENTATIONS

A. PURPOSE OF MEETING AND MEETING INTRODUCTION

COLLEEN LEYDEN, THE U.S. EPA REGION III COMMUNITY RELATIONS COORDINATOR FOR THE AVTEX FIBERS SUPERFUND SITE, WELCOMED MEETING ATTENDEES. SHE EXPLAINED THAT THE PUBLIC MEETING WAS BEING HELD DURING THE PUBLIC COMMENT PERIOD ON THE PROPOSED REMEDY FOR THE CONTAMINATED GROUND-WATER PORTION OF THE AVTEX FIBERS SUPERFUND SITE. WHICH WILL BE OPERABLE UNIT 1 OF A TWO-PHASED ACTION. THE MEETING WAS TO FULFILL TWO PURPOSES: 1) TO INFORM THE COMMUNITY OF EPA'S PROPOSED REMEDIAL ACTION FOR OPERABLE UNIT 1, AND 2) TO OBTAIN PUBLIC COMMENTS ON THE PROPOSED REMEDY. SHE INTRODUCED SPEAKERS AND OTHER STATE AND EPA PERSONNEL.

MS. LEYDEN POINTED OUT THAT EPA HAD AMENDED ITS PROPOSED REMEDIAL ACTION, AS ORIGINALLY DESCRIBED IN THE PRAP DISTRIBUTED TO THE COMMUNITY IN LATE AUGUST 1988. THE PRAP HAD RECOMMENDED ALTERNATIVE 3, PUMPING OF CONTAMINATED GROUND WATER AND TREATING IT IN A NEWLY CONSTRUCTED WASTEWATER TREATMENT PLANT. SINCE THE PRAP WAS WRITTEN, HOWEVER, AVTEX FIBERS HAD PROPOSED TO UPGRADE THE EXISTING WASTEWATER TREATMENT PLANT AT THE SITE. EPA, THEREFORE, NOW RECOMMENDS ALTERNATIVE 2, AS AMENDED PUMPING OF CONTAMINATED GROUND WATER AND TREATMENT IN THE EXISTING WASTEWATER TREATMENT PLANT, WHICH WILL BE UPGRADED TO MEET APPLICABLE STANDARDS. MS. LEYDEN EXPLAINED THAT THIS CHANGE WAS OUTLINED IN THE PRAP ADDENDUM, DISTRIBUTED AT THE MEETING (SEE ATTACHMENT 2).

MS. LEYDEN THEN STATED THAT THE SUPERFUND PROGRAM WAS ESTABLISHED TO ADDRESS ABANDONED HAZARDOUS WASTE SITES, AND CANNOT BE USED TO TAKE ACTION AT CURRENTLY OPERATING FACILITIES. SHE ALSO EXPLAINED THAT THE SUPERFUND PROGRAM UNDERTAKES TWO KINDS ACTIONS TO RESPOND TO HAZARDOUS WASTE PROBLEMS. THE FIRST TYPE IS A "REMOVAL" ACTION, WHICH IS A SHORT-TERM RESPONSE TAKEN TO CLEAN UP IMMEDIATE PROBLEMS. THE SECOND TYPE IS A "REMEDIAL" ACTION, DESIGNED TO ADDRESS LONG-TERM HAZARDOUS WASTE THREATS; THE ACTIONS PLANNED FOR THE AVTEX SITE FALL UNDER THE REMEDIAL CATEGORY. THE AVTEX ACTIONS WILL BE CONDUCTED IN TWO PHASES; THE FIRST, OPERABLE UNIT 1 NOW UNDER CONSIDERATION, WILL ADDRESS GROUND-WATER CONTAMINATION; THE SECOND, OPERABLE UNIT 2, WILL ADDRESS THE VISCOSE BASIN# AND WILL BE UNDERTAKEN IN THE NEAR FUTURE.

B. SITE BACKGROUND AND THE PROPOSED PLAN

RUTH RZEPSKI, THE EPA ENFORCEMENT PROJECT MANAGER FOR THE SITE, BRIEFLY OUTLINED THE AVTEX FIBERS SITE HISTORY. THE PLANT WAS BUILT IN 1940 TO MANUFACTURE RAYON. IT HAS OPERATED CONTINUOUSLY UNDER THE OWNERSHIP OF SEVERAL FIRMS, INCLUDING AVTEX FIBERS, INC., THE CURRENT OWNER. IN 1982, TESTS SHOWED THE PRESENCE OF CARBON DISULFIDE AND PHENOLS IN SOME LOCAL PRIVATE WELLS. THE SITE WAS PROPOSED FOR EPA'S NATIONAL

PRIORITIES LIST (NPL), THE LIST OF NATIONWIDE HAZARDOUS WASTE SITES ELIGIBLE TO RECEIVE FEDERAL FUNDS FOR LONG-TERM CLEANUP, AND WAS OFFICIALLY ADDED TO THE LIST IN 1986.

MS. RZEPSKI EXPLAINED THAT AFTER A SITE IS PLACED ON THE NPL, EPA IDENTIFIES AND NEGOTIATES WITH THE PARTIES WHO CONTRIBUTED TO THE PROBLEM, CALLED POTENTIALLY RESPONSIBLE PARTIES (PRPS), TO PAY TO STUDY AND CLEAN UP THE SITE. EPA BEGAN NEGOTIATIONS WITH AVTEX FIBERS, INC. AND, IN 1987, ENTERED INTO AN ADMINISTRATIVE ORDER WITH THE FIRM TO CONDUCT A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS) AT THE SITE. AN RI/FS IS A SUPERFUND ACTIVITY THAT DETERMINES THE EXTENT OF CONTAMINATION PRESENT AT A HAZARDOUS WASTE SITE AND EVALUATES POSSIBLE ACTIONS TO ADDRESS THE PROBLEM. EPA CONCURRENTLY NEGOTIATED WITH FMC CORPORATION, ANOTHER PRP, AND IN JANUARY 1988, AMENDED THE ADMINISTRATIVE ORDER TO INCLUDE FMC. THE RI WAS CONDUCTED BETWEEN MAY 1987 AND JANUARY 1988.

MS. RZEPSKI BRIEFLY OUTLINED THE FINDINGS OF THE RI. THE VISCOSE BASINS WERE TESTED AND MONITORING WELLS INSTALLED TO SAMPLE THE GROUND WATER. FROM DATA GATHERED, IT WAS DETERMINED THAT VISCOSE BASINS 9, 10, AND 11 ARE CONTAMINATING THE GROUND # WATER. THE HAZARDOUS SUBSTANCES OF CONCERN FOUND DURING SITE SAMPLING WERE SUMMARIZED IN A LIST DISTRIBUTED AT THE MEETING (SEE ATTACHMENT 1). SUBSTANCES FROM THE BASINS ARE MIGRATING THROUGH FRACTURES IN THE BEDROCK AND CONTAMINATING WELLS ACROSS THE SHENANDOAH RIVER FROM THE AVTEX SITE. VISCOSE, WHICH IS HEAVIER THAN WATER, SINKS TO BEDROCK LEVEL AND INTO CRACKS, MOVES UNDER THE RIVER, AND CONTAMINATES GROUND WATER ON THE FAR SIDE; THE SHENANDOAH RIVER IS NOT GREATLY AFFECTED BY THE CONTAMINATED GROUND WATER.

EPA HAD ORIGINALLY EVALUATED THREE REMEDIAL ALTERNATIVES TO ADDRESS THE GROUND-WATER CONTAMINATION AT THE AVTEX SITE, MS. RZEPSKI EXPLAINED. THE FIRST WAS THE "NO-ACTION" ALTERNATIVE, WHICH WOULD INVOLVE CONSTRUCTION OF A FENCE TO PREVENT SITE ACCESS BUT NO ACTIONS TO CLEAN UP THE GROUND WATER; EPA REGULATIONS REQUIRE THAT THIS ALTERNATIVE BE CONSIDERED FOR ALL SUPERFUND SITES. ALTERNATIVE 2 INVOLVED PUMPING AND TREATING THE CONTAMINATED GROUND WATER USING THE EXISTING WASTEWATER TREATMENT PLANT. ALTERNATIVE 3 INVOLVED PUMPING AND TREATING THE CONTAMINATED GROUND WATER USING A NEWLY CONSTRUCTED WASTEWATER TREATMENT PLANT. AFTER THESE ALTERNATIVES HAD BEEN PUBLISHED, HOWEVER, AVTEX FIBERS, INC. RECOMMENDED MODIFYING ALTERNATIVE 2 BY UPGRADING THE EXISTING WASTEWATER TREATMENT PLANT TO MEET' APPLICABLE STANDARDS.

MS. RZEPSKI EXPLAINED THAT, AFTER CAREFUL CONSIDERATION, EPA IS NOW RECOMMENDING ALTERNATIVE 2, WITH UPGRADES. ALTERNATIVE 2 AS NOW PROPOSED CAN BE IMPLEMENTED FASTER THAN ALTERNATIVE 3, AND SHOULD PROVE EQUALLY EFFECTIVE AFTER UPGRADES ARE COMPLETED. IF ALTERNATIVE 2 IS FOUND NOT TO BE TREATING GROUND WATER PROPERLY, ALTERNATIVE 3 WILL BE IMPLEMENTED.

ANN CARDINAL, HEAD OF THE EPA REGION III COMMUNITY RELATIONS STAFF, PROVIDED ADDITIONAL INFORMATION. IN MAKING ITS DECISION ON A REMEDY FOR THE SITE, EPA WILL TAKE INTO CONSIDERATION ALL PUBLIC COMMENTS RECEIVED DURING THE COMMENT PERIOD. AFTER A REMEDY IS SELECTED, EPA WILL PUBLISH A NOTICE IN LOCAL NEWSPAPERS EXPLAINING THE REMEDIAL ACTION THAT WILL BE TAKEN TO ADDRESS THE CONTAMINATED GROUND WATER.

MS. CARDINAL ALSO EXPLAINED THAT, ONCE A REMEDIAL ALTERNATIVE IS SELECTED FOR THE AVTEX FIBERS SITE, EPA WILL ENTER INTO NEGOTIATIONS WITH THE PRPS TO DESIGN AND IMPLEMENT THE REMEDY. SHE CAUTIONED THAT IT WILL TAKE SOME TIME TO BEGIN ACTUAL CONSTRUCTION OF THE REMEDY; IT CANNOT BEGIN IMMEDIATELY BECAUSE IT WILL TAKE SOME TIME TO DESIGN PROPERLY.

III. PUBLIC MEETING COMMENTS

A. RECOMMENDED ALTERNATIVE

1. ONE QUESTIONER ASKED WHETHER EITHER ALTERNATIVE 2 OR 3 REPRESENTS A STATE-OF-THE-ART TREATMENT TECHNOLOGY # THAT CAN BE RELIED UPON TO FUNCTION PROPERLY. SHE ALSO ASKED WHO WILL DETERMINE THE EFFECTIVENESS OF THE REMEDY AND HOW LONG THE PUMPING AND TREATING WILL CONTINUE.

EPA RESPONSE: THE TREATMENT TECHNOLOGY THAT WILL BE IMPLEMENTED UNDER ALTERNATIVE 2, AS AMENDED, IS THE RECOMMENDED METHOD TO TREAT VISCOSE WASTE. IF THE EXISTING WASTEWATER TREATMENT PLANT, AFTER BEING UPGRADED, CANNOT COMPLY WITH ITS STATE DISCHARGE PERMIT. ALTERNATIVE 2 WILL BE TERMINATED AND BE REPLACED BY ALTERNATIVE 3. THUS, A NEW WASTEWATER TREATMENT PLANT WILL BE CONSTRUCTED. EPA WILL WORK CLOSELY WITH THE STATE TO DETERMINE THE UPGRADED PLANT'S EFFECTIVENESS, AND THE PERMIT UNDER WHICH THE # PLANT WILL BE OPERATING WILL BE ISSUED BY THE STATE. THE STATE WILL HELP TO DETERMINE THE TECHNICAL AND ECONOMIC FEASIBILITY OF THE PLANT'S OPERATION.

THE WASTEWATER TREATMENT PLANT WILL CONTINUE TO OPERATE UNTIL THE CONTAMINATED GROUND WATER IS CLEANED UP; AT THIS TIME IT IS IMPOSSIBLE TO DETERMINE HOW LONG THAT WILL BE.

2.A COMMUNITY RESIDENT REQUESTED INFORMATION #ON THE LOCATIONS OF THE GROUND-WATER MONITORING WELLS INSTALLED DURING THE RI/FS, AND ASKED WHETHER THEY WILL CONTINUE TO OPERATE DURING THE REMEDIAL DESIGN AND REMEDIAL ACTION. HE SPECIFICALLY ASKED IF GROUND WATER WILL BE MONITORED ON THE EAST SIDE OF THE SHENANDOAH RIVER.

EPA RESPONSE: THE LOCATIONS OF THE MONITORING WELLS ARE INDICATED ON THE MAP DISTRIBUTED AT THE MEETING (SEE ATTACHMENT 1). THESE WELLS ARE LOCATED ON BOTH THE EAST AND WEST SIDES OF THE RIVER. THE WELLS WILL CONTINUE TO OPERATE THROUGHOUT THE REMEDIAL ACTION UNTIL GROUND WATER REACHES TARGET LEVELS.

3.A MEETING ATTENDEE ASKED WHETHER EPA WILL MONITOR NEIGHBORING "CLEAN" AREAS DURING PUMPING TO DETERMINE WHETHER REMOVING LARGE AMOUNTS OF WATER WILL CONTAMINATE THOSE AREAS, OR WHETHER PUMPING WILL FORCE CONTAMINATED GROUND WATER INTO THE SHENANDOAH RIVER.

EPA RESPONSE: THE DYNAMICS OF THE PUMPING WILL MAKE IT ALMOST IMPOSSIBLE TO DISPERSE CONTAMINATED GROUND WATER INTO AREAS THAT ARE CURRENTLY CLEAN. GROUND

WATER TENDS TO FLOW FROM HIGHER TO LOWER LEVELS. BECAUSE OF THE PUMPING ACTION, WHICH WILL EXTRACT LARGE AMOUNTS OF WATER, GROUND WATER NEAR THE PUMPING WELL WILL BE AT A LOWER LEVEL THAN THE SURROUNDING AREAS. THUS, THE PUMPING WOULD TEND TO PULL CLEANER WATER TOWARD THE CONTAMINATED AREAS AND DILUTE THE SUBSTANCES PRESENT, RATHER THAN FORCE CONTAMINATION TOWARD PURER AREAS. PUMPING TESTS HAVE INDICATED THAT THIS WILL OCCUR AND EPA IS CONFIDENT THAT PUMPING WILL NOT FURTHER DISSEMINATE CONTAMINANTS.

SIMILARLY, TESTS HAVE SHOWN THAT IT IS UNLIKELY THAT CONTAMINATED GROUND WATER WILL BE FORCED INTO THE SHENANDOAH RIVER BY THE PUMPING. SOME MINOR LEAKAGE MAY OCCUR FROM THE RIVER TO THE GROUND WATER; HOWEVER, BECAUSE THE RIVER-WATER QUALITY IS HIGHER THAN THE WATER IN THE PLUME, THIS WOULD IMPROVE THE QUALITY OF THE GROUND WATER RATHER THAN FURTHER DEGRADE IT.

4.THE SAME ATTENDEE ASKED HOW DEEP THE GROUND-WATER PUMPING WELLS WILL BE; HOW EPA WILL DISPOSE OF THE TREATED GROUND WATER; AND WHETHER EPA WILL INSTALL ADDITIONAL MONITORING WELLS DURING THE REMEDIAL ACTION.

EPA RESPONSE: THE WELLS USED TO PUMP GROUND WATER WILL BE 150-175 FEET DEEP. AFTER TREATMENT IS COMPLETED, THE WATER WILL BE DISCHARGED INTO THE SHENANDOAH RIVER. AT THIS TIME, EPA IS IN THE PROCESS OF DETERMINING WHETHER TO DRILL MORE GROUND-WATER MONITORING WELLS, ALTHOUGH THE EXISTING WELLS HAVE FUNCTIONED ADEQUATELY FOR NEARLY TWO YEARS.

5.THE SAME INDIVIDUAL THEN ASKED WHETHER GERAGHTY & MILLER, WHO PERFORMED THE RI/FS, WILL CONDUCT THE REMEDIAL DESIGN AND REMEDIAL ACTION AT THE AVTEX SITE.

EPA RESPONSE: THE DECISION OF A REMEDIAL DESIGN AND REMEDIAL ACTION CONTRACTOR WILL BE MADE BY THE PRPS. EPA DOES NOT YET KNOW WHICH FIRM WILL BE USED.

6.ONE INDIVIDUAL ASKED WHAT ROLE THE VIRGINIA STATE WATER CONTROL BOARD WILL HAVE IN MONITORING THE WASTEWATER TREATMENT PLANT.

EPA RESPONSE: THE WATER CONTROL BOARD WILL SET THE DISCHARGE LIMITS THAT THE PLANT MUST MEET. THE WATER CONTROL BOARD, USING STATE PERSONNEL, WILL ALSO MONITOR THE PLANT'S DISCHARGE LEVELS.

B. COSTS OF REMEDIAL ACTION

1.ONE ATTENDEE POINTED OUT THAT ALTERNATIVE 2, IF SELECTED, WILL REQUIRE APPROXIMATELY \$10.2 MILLION TO IMPLEMENT ACCORDING TO THE PRAP COST ESTIMATES. HE ASKED EPA TO E#PLAIN HOW MUCH OF THIS MONEY WILL BE SPENT DURING THE FIRST TWO TO THREE YEARS OF THE REMEDY, AND HOW MUCH WILL BE REQUIRED THEREAFTER. HE ALSO STATED THAT REPORTS IN THE INFORMATION REPOSITORY INDICATE THAT APPROXIMATELY 40 PERCENT, OR \$4 MILLION, WILL BE USED DURING THE TWO TO THREE YEARS FOR START UP AND THE REMAINING \$6.2 MILLION IN LATER YEARS.

EPA RESPONSE: THE ESTIMATED COST FOR ALTERNATIVE 2, AS SHOWN IN THE PRAP ADDENDUM, IS NOW \$9.1 MILLION, REPRESENTING A DIFFERENCE OF APPROXIMATELY \$1.1 MILLION FROM THE \$10.2 FIGURE ORIGINALLY QUOTED. AT THIS TIME IT IS NOT POSSIBLE TO STATE PRECISELY HOW MUCH MONEY WILL BE SPENT ON THE REMEDY DURING ITS FIRST YEARS OF OPERATION. AFTER THE EXISTING WASTEWATER TREATMENT PLANT IS UPGRADED TO COMPLY WITH APPLICABLE TREATMENT STANDARDS, MOST OF THE REMAINDER OF THE MONEY WILL BE USED FOR OPERATION AND MAINTENANCE OF THE PLANT.

REPORTS ON FILE IN THE INFORMATION REPOSITORY DO ESTIMATE THAT ROUGHLY 40 PERCENT OF THE REMEDIAL

IMPLEMENTATION FUNDS WILL BE SPENT DURING THE FIRST TWO OR THREE YEARS OF THE REMEDY, WITH THE REMAINDER BEING USED THROUGHOUT THE LIFE OF THE CLEANUP ACTION. THESE FIGURES, AND THOSE SHOWN IN THE PRAP, ARE ESTIMATES OF PRESENT-WORTH COSTS IN TODAY'S DOLLARS. ACTUAL COSTS ARE LIKELY TO VARY DEPENDING ON NUMEROUS FACTORS SUCH AS INFLATION.

2. ANOTHER MEETING ATTENDEE ASKED WHETHER AVTEX FIBERS, INC. WILL BE EXPECTED TO BEAR THE ENTIRE COST OF THE REMEDIAL ACTION ITSELF, OR WHETHER OTHER FIRMS WILL SHARE THEM.

EPA RESPONSE: THAT IS STILL TO BE DETERMINED. THERE ARE CURRENTLY TWO SIGNATORIES TO THE ADMINISTRATIVE ORDER UNDER WHICH THE RI/FS WAS CONDUCTED: AVTEX FIBERS, INC., AND FMC CORPORATION. THAT AGREEMENT, HOWEVER, COVERED ONLY THE INVESTIGATION AND PLANNING PHASE OF SITE RESPONSE. THERE WILL BE A SECOND ROUND OF NEGOTIATIONS WITH THE PRPS TO DETERMINE WHETHER THEY WILL PAY FOR THE REMEDIAL DESIGN AND REMEDIAL ACTION.

C. GENERAL QUESTIONS

1. ONE COUNTY RESIDENT ASKED WHETHER EPA HAS INVESTIGATED OR PLANS TO INVESTIGATE REPORTS OF DUPONT'S DISPOSAL OF WASTES INTO THE CITY SEWER SYSTEM.

EPA RESPONSE: IT IS LIKELY THAT ANY DISPOSAL OF WASTES INTO THE CITY SEWER SYSTEM WOULD PRIMARILY AFFECT THE SHENANDOAH RIVER. OPERABLE UNIT 1, WHICH IS THE SUBJECT OF THIS PUBLIC COMMENT PERIOD, DEALS

ONLY WITH GROUND-WATER CONTAMINATION, NOT WITH THE RIVER. IN ADDITION, SUPERFUND CANNOT ADDRESS PROBLEMS ASSOCIATED WITH DISCHARGING SUBSTANCES INTO PERMITTED MUNICIPAL TREATMENT PLANTS; PROBLEMS OF THIS TYPE ARE REGULATED UNDER OTHER LAWS.

2. A MEETING PARTICIPANT ASKED WHETHER PUBLIC COMMENTS RECEIVED DURING THE COMMENT PERIOD WILL BE CONSIDERED WHEN EPA SELECTS THE REMEDY.

EPA RESPONSE: ALL COMMENTS THAT EPA RECEIVES DURING THE DESIGNATED PUBLIC COMMENT PERIOD ARE REVIEWED AND CONSIDERED EQUALLY IN EPA DECISION MAKING. ONLY EPA AND STATE COMMENTS RECEIVE ADDED EMPHASIS. AFTER THE PUBLIC COMMENT PERIOD IS COMPLETED, ALL COMMENTS WILL BE SUMMARIZED IN A DOCUMENT CALLED A RESPONSIVENESS SUMMARY, WHICH WILL BE ATTACHED TO THE DECISION DOCUMENT FOR THE AVTEX SITE.

3. ONE ATTENDEE READ INTO THE MEETING MINUTES A PREPARED STATEMENT THAT VOICED DISSATISFACTION WITH ALL OF THE ALTERNATIVES CONSIDERED FOR THE AVTEX SITE. SHE CITED. ENVIRONMENTAL PROBLEMS REPORTEDLY CAUSED BY AVTEX FIBERS, INC., ESPECIALLY AIR EMISSIONS AND DUMPING WASTES INTO THE RIVER, AND STATED THAT SHE WOULD LIKE THE PLANT TO BE CLOSED.

EPA RESPONSE: EPA IS SOMETIMES IN THE POSITION OF IMPROVING THE ENVIRONMENT WITHOUT CLOSING IMPORTANT ECONOMIC RESOURCES. IT WILL TAKE MANY MILLIONS OF DOLLARS FOR EPA TO CLEAN UP THE ENVIRONMENT; ENVIRONMENTAL PROBLEMS HAVE TAKEN YEARS TO CREATE AND THEY WILL TAKE YEARS TO CLEAN UP. THUS, EPA MUST PROCEED IN A STEP-WISE FASHION. ALTHOUGH EPA HAS MORE THAN \$8 BILLION TO CLEAN UP ABANDONED HAZARDOUS WASTE SITES, IT WILL ACTUALLY TAKE MANY TIMES THAT AMOUNT TO ADDRESS JUST THE SITES THAT ARE KNOWN. EPA IS REQUIRED BY NECESSITY AND BY LAW TO CONSERVE THE TRUST FUND AS MUCH AS POSSIBLE. IT MUST WORK WITH ECONOMICALLY VIABLE INDUSTRIES, SUCH AS AVTEX, TO INVESTIGATE AND CLEAN UP THE PROBLEMS THAT THEY HAVE HELPED TO CREATE. AVTEX IS COOPERATING WITH EPA TO ADDRESS THE CONTAMINATION PRESENT.

4. SEVERAL ATTENDEES VOICED THEIR CONCERN ABOUT GENERAL ENVIRONMENTAL PROBLEMS AND ATTITUDES. ONE STATED THAT EPA IS NOT GENERALLY COMPLYING WITH THE NATIONAL ENVIRONMENTAL PROTECTION ACT (NEPA), WHICH IS A LAW PASSED TO PROTECT, PRESERVE, AND RESTORE THE ENVIRONMENT. ANOTHER STATED THAT THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITTING PROCESS, UNDER WHICH THE AVTEX WASTEWATER TREATMENT PLANT WILL OPERATE, IS A LICENSE TO POLLUTE.

EPA RESPONSE: NEPA IS A GOAL TOWARD WHICH EPA STRIVES. THE U.S. HAS PROGRESSIVELY TRIED TO ADDRESS DIFFERENT ENVIRONMENTAL PROBLEMS WITH THE SUCCESSIVE PASSAGE OF THE CLEAN AIR ACT IN 1970, THE CLEAN WATER ACT IN 1972, THE RESOURCE CONSERVATION AND RECOVERY ACT IN 1976, AND SUPERFUND IN 1980. THE MAGNITUDE OF THE PROBLEMS THAT EPA MUST ADDRESS, HOWEVER, IS LARGE AND IT IS IMPOSSIBLE TO SUCCEED COMPLETELY IMMEDIATELY. IT IS, THEREFORE, NECESSARY TO INSTITUTE SUCH PROGRAMS AS NPDES. HOWEVER, THE PURPOSE OF THIS MEETING IS TO DISCUSS ISSUES SPECIFIC TO THE AVTEX SITE. THESE COMMENTS ARE OUTSIDE THE SCOPE OF OUR CURRENT PURPOSES, AND WILL BE MORE APPROPRIATELY REFERRED TO CONGRESS FOR CONSIDERATION.

IV. WRITTEN COMMENTS

A. CITIZEN COMMENTS

1. IN SEPARATE COMMENTS, A RIVERMONT ACRES PROPERTY OWNER AND A FIDDLER'S GREEN PROPERTY OWNER EXPRESSED CONCERN OVER THE QUALITY OF GROUND WATER IN THE SUBDIVISIONS. ONE OF THESE RESIDENTS ALSO INDICATED THAT THE QUALITY OF THE GROUND WATER HAD BEEN POOR SINCE 1966.

EPA RESPONSE: THE VIRGINIA STATE WATER CONTROL BOARD IN 1982 DETECTED GROUND-WATER CONTAMINATION IN PRIVATE WELLS LOCATED IN THE RIVERMONT ACRES SUBDIVISION ACROSS THE SHENANDOAH RIVER FROM AVTEX, AND REQUESTED THAT AVTEX FIBERS, INC. PERFORM GROUND-WATER STUDIES. UPON COMPLETION OF THESE STUDIES, AVTEX UNDERTOOK MEASURES TO ADDRESS THE CONTAMINATION, MEASURES THAT INCLUDED THE PURCHASE OF MOST SUBDIVISION PROPERTIES AND GROUND-WATER PUMPING AND TREATMENT. THROUGH THE VIRGINIA STATE WATER CONTROL BOARD, EPA ALSO BECAME AWARE OF THE GROUND-WATER PROBLEM IN 1982, A PROBLEM THAT WILL BE ADDRESSED AND EVENTUALLY REMEDIATED THROUGH ALTERNATIVE 2, THE PREFERRED ALTERNATIVE. EPA RECORDS INDICATE THAT NO WELLS WITHIN THE CONTAMINATED PLUME ARE BEING USED TO PROVIDE DRINKING WATER.

2. ONE RESIDENT ASKED WHO WILL BE RESPONSIBLE FOR ENFORCING CLEANUP ACTIVITIES AT THE AVTEX FIBERS SITE.

EPA RESPONSE: ONCE THE ROD IS SIGNED, NEGOTIATIONS WILL BEGIN WITH THE POTENTIALLY RESPONSIBLE PARTIES (PRPS) ASSOCIATED WITH THE AVTEX FIBERS SITE. EPA WILL SEEK TO HAVE THE PRPS IMPLEMENT THE REMEDIAL ACTION. IF NEGOTIATIONS ARE SUCCESSFUL, EPA WOULD ENTER INTO AN AGREEMENT WITH THE PRPS. IF NEGOTIATIONS ARE UNSUCCESSFUL, EPA WOULD EITHER PERFORM THE REMEDIAL WORK ITSELF AND THEN ATTEMPT TO RECOVER THESE COSTS FROM THE PRPS, OR COULD BEGIN LEGAL PROCEEDINGS TO FORCE THE PRPS TO PERFORM ALL NECESSARY ACTIONS.

3. A CITIZEN WAS CONCERNED THAT ONLY TWO WELLS ON THE WEST BANK OF THE SHENANDOAH RIVER WOULD BE USED TO MONITOR GROUND-WATER QUALITY ON THE RIVER'S WEST SIDE. HE WAS ALSO CONCERNED THAT NO WELLS FURTHER SOUTHWEST HAD BEEN TESTED, AND WORRIED THAT THE CONTAMINANT PLUME MAY HAVE MIGRATED PAST THE RIDGELINE SOUTHWEST OF RIVERMONT ACRES. HE SUGGESTED THAT HIS WELL BE SAMPLED ALONG WITH THE OTHER TWO WELLS.

EPA RESPONSE: EPA WILL REQUIRE THE MONITORING OF GROUND WATER ON THE WEST SIDE OF THE RIVER; HOWEVER, THE NUMBER AND LOCATIONS OF THESE WELLS HAS YET TO BE DETERMINED.

EPA HAS ASKED THE COMPANIES WHO HAVE ENTERED INTO THE ADMINISTRATIVE ORDER TO SAMPLE THREE ADDITIONAL WELLS, WHICH ARE LOCATED SOUTHWEST OF THE RIVERMONT ACRES SUBDIVISION, FOR INDICATOR CHEMICALS. THESE WELLS ARE NUMBERS 187, 199, AND 201, AND WERE CHOSEN BECAUSE OF THEIR LOCATION ALONG THE BEDROCK AND THEIR DEPTH TO AN ELEVATION NEAR 430 FEET MEAN SEA LEVEL. IF CONTAMINATION HAS MIGRATED THIS DISTANCE, EPA WOULD EXPECT TO FIND THE CONTAMINANTS AT OR NEAR 430 FEET MEAN SEA LEVEL.

B. AVTEX FIBERS, INC. COMMENTS

1. AVTEX FIBERS COMMENTED THAT THEY AGREE WITH ALTERNATIVE 2 AS PROPOSED IN THE ADDENDUM TO THE PRAP, ISSUED ON SEPTEMBER 14, 1988.

EPA RESPONSE: EPA APPRECIATES THE CONCURRENCE OF AVTEX FIBERS, INC. ON ALTERNATIVE 2, THE PREFERRED REMEDIAL ALTERNATIVE.

C. FMC ISSUES

1. THE "TWO-STAGE PROCESS" IS INAPPROPRIATE.

EPA RESPONSE: THE AGENCY HAS THE AUTHORITY TO SPLIT REMEDIATION INTO OPERABLE UNITS. BECAUSE EPA DOES NOT KNOW THE CONCENTRATIONS OF HAZARDOUS SUBSTANCES WHICH WILL REMAIN IN THE VISCOSE BASINS AFTER DEWATERING, THE OPERABLE UNIT APPROACH TO THIS REMEDIATION IS APPROPRIATE. EPA HAS RECOMMENDED THE PUMPING AND TREATING OF GROUND WATER AND BASIN FLUIDS. AFTER THAT HAS BEEN COMPLETED, THE TOXICITY OF THE VISCOSE BASINS WILL BE DETERMINED.

THE COMMENT BY FMC THAT THEY HAVE PROPOSED CAPPING THE BASINS DURING THE DEWATERING PROCESS IS IN ERROR. PAGE 4-14 OF THE FS REPORT DATED AUGUST 26, 1988, STATES, "AFTER DEWATERING, A 2 TO 4 FOOT SOIL CAP WOULD BE PLACED ON TOP OF THE BASINS." THE STATEMENT BY THE COMMENTOR THAT A SOIL CAP BE PLACED ON THE VISCOSE BASINS DURING THE DEWATERING IS NOT ACCEPTABLE, SINCE THIS SUGGESTS LEAVING THE DEWATERED VISCOSE WASTE IN PLACE WITHOUT TREATING THE REMAINING HAZARDOUS WASTE.

FURTHERMORE, DATA IN THE RI ARE NOT SUFFICIENT TO SUPPORT THE CONCLUSION THAT THE CONCENTRATIONS OF HAZARDOUS SUBSTANCES IN THE VISCOSE BASINS WILL DECREASE SIGNIFICANTLY WITH TIME, AND THAT THE CONCENTRATIONS

OF THESE SUBSTANCES REMAINING AFTER DEWATERING WILL NOT PRESENT A SIGNIFICANT THREAT TO HUMAN HEALTH AND THE ENVIRONMENT.

FMC WAS GIVEN NOTICE DURING AN AUGUST 19, 1988, MEETING WITH EPA, AND BY A LETTER DATED AUGUST 23, 1988, CONFIRMING THE SUBSTANCE OF THAT MEETING, THAT IT WAS NECESSARY TO OBTAIN ADDITIONAL INFORMATION ABOUT THE HAZARDOUS SUBSTANCES IN THE VISCOSE BASINS AND EFFECTIVE TREATMENT METHODS FOR THE VISCOSE BASIN MATERIALS AFTER DEWATERING.

2. THE PRAP MAY MISCHARACTERIZE FMC'S RESPONSIBILITIES.

EPA RESPONSE: THE FS REPORT SUBMITTED TO EPA BY AVTEX FIBERS, INC. AND FMC CORPORATION ON AUGUST 26, 1988, PROPOSED MODIFYING AND UPGRADING THE EXISTING WASTEWATER TREATMENT PLANT (WWTP). ON PAGE B-LL, IT STATES, "THE EXISTING PLANT MUST BE MODIFIED TO ATTAIN COMPLIANCE WITH EXISTING AND FUTURE NPDES PERMITS... GENERAL MAINTENANCE AND UPGRADING OF THE AERATION BASINS AND CLARIFIERS WOULD ALSO INCREASE THE REMOVAL EFFICIENCY OF THE EXISTING WWTP." ALSO ON PAGE B-15 OF THE FS REPORT, \$1 MILLION HAS BEEN ESTIMATED FOR MODIFICATIONS TO THE EXISTING WWTP. THEREFORE, IT IS NOT MISLEADING TO STATE IN THE ADDENDUM TO THE PRAP THAT AVTEX FIBERS, INC. AND FMC CORPORATION PROPOSED UPDATING THE EXISTING PLANT.

BASED ON THE COST ESTIMATES FOR THE REMEDIAL ACTION PRESENTED IN THE FS REPORT, IT WAS CONSIDERED MORE COST-EFFECTIVE TO BRING THE EXISTING WWTP INTO COMPLIANCE WITH EXISTING AND FUTURE NPDES PERMIT REQUIREMENTS. THEREFORE, UPGRADING AND MODIFYING THE EXISTING PLANT REMAINS A VIABLE OPTION AS OPPOSED TO CONSTRUCTING A NEW PACKAGE PLANT TO TREAT THE RECOVERED GROUND WATER AND BASIN FLUIDS.

THE COMPANIES ALSO PROPOSED IN THE FS REPORT THAT THE PACKAGE PLANT SHOULD BE CONSIDERED AS A CONTINGENCY, SHOULD THE PROPOSED MODIFICATIONS TO THE EXISTING PLANT BE FOUND INFEASIBLE OR IF, BASED ON BENCH-SCALE AND/OR PILOT STUDIES, IT IS LATER DETERMINED THAT THE EXISTING WWTP CANNOT ADEQUATELY TREAT THE LIQUIDS. EPA AGREED WITH THE APPROACH PRESENTED IN THE FS REPORT AND MODIFIED THE PRAP ACCORDINGLY.

3. THE NPDES CONTINGENCY CANNOT BE OPEN-ENDED.

EPA RESPONSE: AS PRESENTED IN THE FS REPORT SUBMITTED BY AVTEX FIBERS, INC. AND FMC CORPORATION, UPGRADES TO THE EXISTING WWTP ARE CONSIDERED PART OF THE REMEDIAL ACTION. EPA TAKES NO POSITION AS TO THE APPORTIONMENT OF LIABILITY OF COSTS FOR REMEDIATION ASSOCIATED WITH THE EXISTING WWTP. UNDER CERCLA, EACH OF THE PRPS MAY BE JOINTLY AND SEVERABLY LIABLE FOR IMPLEMENTING THE SELECTED REMEDY AND FOR THE COST THEREOF. ABSENT OF SHOWING A DIVISIBLE INJURY, EPA TAKES NO POSITION ON THE ALLOCATION OF LIABILITY AMONG PRPS.

4. JOINDER OF PRPS.

EPA RESPONSE: EPA IS EVALUATING THE INFORMATION PROVIDED BY FMC CORPORATION CONCERNING ADDITIONAL RESPONSIBLE PARTIES AND, WHERE APPROPRIATE, WILL ISSUE NOTICE LETTERS TO THESE PARTIES. EPA WELCOMES ALL INFORMATION CONCERNING OTHER PARTIES THAT MAY BE PRPS AT THE AVTEX FIBERS SITE.

D. OTHER ISSUES NOT APPROPRIATE TO SUPERFUND

OTHER ISSUES RAISED IN WRITING DURING THE PUBLIC COMMENT PERIOD, BUT WHICH COULD NOT BE ADDRESSED UNDER SUPERFUND, INCLUDED THE FOLLOWING:

DIKES BUILT AND INSTALLED BY AVTEX ALONG THE SHENANDOAH RIVER ACROSS FROM THE FIDDLER'S GREEN SUBDIVISION;

FIDDLER'S GREEN AND RIVERMONT ACRES SUBDIVISION SETTLEMENTS, TRANSACTIONS, AND NEGOTIATIONS WITH AVTEX FIBERS, INC.;

OPERATIONS INTERNAL TO THE AVTEX FIBERS FACILITY, INCLUDING PENSIONS AND BENEFITS;

THE INSTALLATION OF A SEWER LINE THROUGH THE FIDDLER'S GREEN SUBDIVISION; AND

THE REMOVAL OF TOP SOIL# FROM FIDDLER'S GREEN LOTS.

SUPERFUND IS DESIGNED TO ADDRESS PAST HAZARDOUS WASTE DISPOSAL AND HANDLING PRACTICES THAT HAVE RESULTED IN PROVEN OR POTENTIAL ENVIRONMENTAL PROBLEMS. IT DOES NOT PROVIDE THE AUTHORITY TO RESPOND TO CURRENT WASTE PRODUCTION NOR TO ACTIVITIES THAT ARE INTERNAL TO CURRENTLY OPERATING FACILITIES. HAZARDOUS WASTE THAT IS BEING PRODUCED TODAY IS REGULATED UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA).